

## MISCELLANEOUS NOTES ON AUSTRALIAN DIPTERA. VIII.

## SUBFAMILY LOMATIINAE.

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(Four Text-figures.)

[Read 30th July, 1941.]

The subfamily Lomatiinae was omitted from the revision of Australian Bombyliidae by Dr. F. H. S. Roberts (These PROCEEDINGS, liii, 1928, 90-144, 413-455, and liv, 1929, 443-533), but he made certain advances in his studies. Subsequently Dr. F. W. Edwards gave a new understanding in a paper which appeared in the *Encyclopedie Entomologique, Dipt.*, vii, 1934, 81-112, access to which is not easily obtained in Australia.

Edwards, who had examined many of the types, showed that earlier attempts to arrange species of *Comptosia* were not successful, and put forward a temporary plan of arranging them into groups and subgroups in accordance with certain structures and colouration. He gave subgeneric rank to two major divisions, and these prove stable, though his lesser groups fail to interpret affinities. Nevertheless his subgenus *Comptosia sensu stricto* rearranged, is formed by two natural groups, *Comptosia* and *Alyosia*, but for taxonomic purposes three groups are formed in this paper.

The Roberts collection and other specimens in the Queensland Department of Agriculture, those of the Queensland Museum, my own collection and sundry others, were taken into account for purposes of the present study. The forty-three species thus found comprise thirty-three species in common with most of the forty given by Edwards. There are, however, six names unplaced and ten species unnamed. One name proves to be preoccupied and Edwards wrongly attributed two names to the sexes of another species; for these, two new names are given below.

The type locality of the Diptera described by Macleay is regarded as being Sydney, and the evidence for this is discussed at the end of this paper.

*Key to Genera of Lomatiinae.*

- |  |                           |
|--|---------------------------|
| 1. Metapleura with a tuft of soft hairs .....                | 2                         |
| Metapleura bare .....  | 3                         |
| 2. Tibiae devoid of bristles .....                           | <i>Docidomyia</i> White   |
| Bristles present on intermediate and posterior tibiae .....  | <i>Doddosia</i> Edwards   |
| 3. Anal vein sinuous; alula large .....                      | <i>Oncodosia</i> Edwards  |
| Anal vein straight; alula small or absent .....              | 4                         |
| 4. Radial vein very strongly reflexed to moderately so ..... | <i>Comptosia</i> Macquart |
| Radial vein curved, but not or only slightly reflexed .....  | <i>Lomatia</i> Meigen     |

*Key to Species of Comptosia.*

- |  |  |    |
|--|--|----|
| 1. Alula variable in development, but definitely separated from the axillary area by a distinct incision. Male with eyes contiguous, or if slightly separated, then no hairs occur on the strip between them ..... | Subgenus <i>Comptosia</i> Edwards .... | 2  |
| Alula not developed, the straight border of the wing flows into the edge of the axillary area without an incision to mark the boundary ....  | Subgenus <i>Aleucosia</i> Edwards .... | 18 |

## Subgenus COMPTOSIA Macquart (restricted by Edwards).

- |   |                              |   |
|---|------------------------------|---|
| 2. Wings uniformly deep brown, rarely varying to a lighter tone within the cells. Radial loop deep and the vein $M_3$ usually with the apical part (portion lying beyond the discal cell) diverted away from the direction of the basal part (which borders the median cell below), by an angle of 30 degrees, but there are two exceptions. Abdomen black, sometimes with red, but never with light-coloured hair-bands .. | <i>fascipennis</i> -group .. | 3 |
| If wings be intensely and uniformly brown, then the radial loop is very shallow (about as deep as wide). Normally varying colour intensity to clear, and invariably the median vein is diverted by 30 degrees .....   | <i>basilis</i> -group ....   | 7 |

Wings never intensely brown throughout, and the vein  $M_3$  lies in the same direction as the basal part, at most slightly diverted, but considerably less so than 30 degrees. Always without the radial cross-vein and with scutellum black . . . . . *ocellata*-group . . . . 14

COMPTOSIA FASCIPENNIS-group.

3. Costa of male conspicuously tuberculated. Interradial cross-vein present. Abdomen partly, scutellum wholly red. Hairs on frons black, on face white or yellow . . . . . 4
- Costa of male not or not noticeably tuberculated. Without an interrarial cross-vein. Scutellum black and abdomen entirely or mainly so . . . . . 5
4. Eyes of male contiguous for a considerable distance and both sexes with white apically on the wings . . . . . *fascipennis* Macquart
- Eyes of male contiguous for a shorter distance and only the male with white apically on the wings . . . . . *lateralis* Newman
5. Wings of both sexes with white subapically. Third median vein not diverted. Hair on frons all black in male, some white in female; on face white to yellowish . . . . .
- . . . . . *nigriscens* Newman
- Without white on wings . . . . . 6
6. Third median vein diverted by 30 degrees. Hair on frons black, on face white or yellowish . . . . . *sobria* Walker
- Third median vein not diverted. Yellow hair of face extends to frons . . . . . *brunnea* Edwards

COMPTOSIA BASILIS-group.

7. With an interrarial cross-vein between fourth and fifth radial veins, in addition to the normal one. Costa tuberculated on male. Abdomen with a light median stripe . . . . .
- . . . . . *vittata* Edwards
- At most only the normal interrarial cross-vein present . . . . . 8
8. Costa tuberculated in male. Interradial cross-vein present and the wings with white apically. Scutellum red and the basal segment of the abdomen with a thin band of light hairs . . . . . 9
- Costa in male not tuberculated. Interradial cross-vein absent . . . . . 10
9. Wing veins densely fumed along their length; some conspicuous spots also present . . . . .
- . . . . . *decedens* Walker
- Wing veins only slightly less densely fumed and no spots present . . . . . *basilis* Walker
10. Radial loop deep, the wings well marked with white apically. Each abdominal segment with a pale band . . . . . 11
- Radial loop shallow and the wings rather uniformly suffused light brown . . . . . 13
11. Wings with the anterior border and the broad subapical band brown . . . . . *quadripennis* Walker
- Wings similar and in addition with a basal area broadly brown . . . . . 12
12. Frons and face with white hairs . . . . . *bancrofti* Edwards
- Hairs on frons black, on face creamy-white . . . . . *biguttata* Edwards
13. Male only with white on wings. Scutellum and abdomen black . . . . . *edwardsi* n.n.
- Both sexes without white on wings. Scutellum red, abdomen red at sides . . ? *rubifera* Bigot

COMPTOSIA OCELLATA-group (= ALYOSIA Rond.).

14. Wings with white in the central field as well as apically. Frons black above, golden lower and on face. Vein at lower border of median cell marked with fuscous, as also the extreme tip of wing . . . . . *ocellata* Newman
- Similar, but vein bordering median cell below and extreme tip of wing entirely without fuscous . . . . . *gemina* n.n.
- White on wings only at the apex and sometimes female without this white . . . . . 15
15. Wings rather uniformly brown except over two or three cells at anal area; this varies to being shadowed along the veins. Abdomen uniformly black . . . . . 16
- Wings with a distinct subapical band and the costal area also brown, but the colour varies in intensity. Abdomen banded with a line of light hairs on each segment . . . . . 17
16. Hair on face glistening white, the colour slightly extending to frons where otherwise black hairs occur . . . . . *apicalis* Macquart
- Hair on face dull yellowish, which colour surrounds antennae, otherwise black on frons. Antennal arista unusually thin and dilated at apex . . . . . *walkeri* Edwards
17. Hair on face and frons glistening white but may be largely or partly yellow . . . . .
- . . . . . *wilkinsi* Edwards
- Hair on face and surrounding antennae yellow, otherwise on frons black . . . . . *mortoni* Macquart

Subgenus ALEUCOSIA Edwards.

18. With fuscous spot at interrarial cross-vein; never with spots at apex of the median and anal veins . . . . . 19
- If with a spot at the interrarial cross-vein, then also spots occur at the apex of the median and anal veins. Normally without these, but spots may occur around the discal cell, and the interrarial cross-vein is frequently absent . . . . . 20

19. Abdomen with a median stripe. Yellow hairs on face and surrounding antennae, otherwise black on frons ..... *maculosa* Newman  
Abdomen without the median stripe ..... *fulvipes* Bigot
20. Costal border marked with fuscous which does not reach the base of the fourth radial vein.  
Spots present or absent ..... 21  
Costal border marked with fuscous which reaches the base of the fourth radial vein .. 27  
Fuscous marking generally distributed ..... 30
21. Interradial cross-vein present, very rarely absent ..... 22  
Interradial cross-vein always absent ..... 25
22. Fuscous area of costa not reaching wing tip ..... *tricellata* Macquart  
Fuscous area of costa reaching wing tip, the exceptions rare and apparently limited to  
*C. corculum* ..... 23
23. East Australian species on which the spots are always present on wing ..... 24  
West Australian species on which the spots of wing are usually present .. *corculum* Newman
24. From Mt. Wellington, Tasmania; with frons broader than that of the mainland form  
..... *tripunctata* Edwards  
From the mainland; with frons narrower than that of the Tasmanian form .....  
..... *calophthalma* Thomson
25. Wings with spots ..... *atherix* Newman  
Wings without spots ..... 26
26. First basal cell completely fuscous ..... *hemiteles* Schiner  
First basal cell clear at apex ..... *costalis* Edwards
27. Costa on male strongly bowed apically; both basal cells entirely fuscous. Abdomen banded  
and legs black ..... *partita* Walker  
Costa normal, legs reddish ..... 28
28. Vein closing apex of discal cell clouded ..... 29  
Vein closing apex of discal cell without the marking ..... *dorsalis* Walker
29. With the fuscous marking not only clouding the interr radial cross-vein, but also extending  
towards apex of the cell; fuscous marking also at base and apex of cell between third  
and fourth radial veins ..... *cuneata* Edwards  
Without the extension of the fuscous marking on the interr radial cross-vein, and with an  
additional marking in the cell between third and fourth radial veins .. *angusta* Edwards
30. The whole wing uniformly fuscous, except a light streak which lies in the radial field  
..... *serpentiger* Walker  
Wings mottled; in addition to the usual wing spots, others lie at the apex of all veins.  
Costal area fuscous over basal part, less intensely so over apical half. Two inter-  
radial cross-veins lie side by side, strongly converging towards costa .... *plena* Walker

Genus COMPTOSIA Macquart.

*Comptosia* Macquart, *Dipt. exot.*, ii (1), 1840, 80. *Lygira* Bigot, *Ann. Soc. ent. Fr.*, (3) vi, 1858, 574; *ibid.*, (6) i, 1881, 22; *nec Lygira* Newman.

*Lygira* was intended for Newman's *Ligyra*, which Bigot was the first to regard as being identical with *Comptosia*, but Edwards concluded that it takes precedence over *Hyperalonia* Rondani. As there is only one specific name standing under *Lygira*, it is proposed to retain the genus as a synonym of *Comptosia* so as to simplify references.

Edwards is in error in stating that I had overlooked the fact that *Ligyra* takes precedence over *Hyperalonia*. I was reluctant to remove the name until the position was assured, as Newman may have had quite a different species under the genus to that of the genotype quoted, which I had identified as *Hyperalonia*, without having seen the type.

Subgenus COMPTOSIA (Macquart).

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 87. *Neuria* Newman, *Entomologist*, i, 1841, 220.

Edwards gave five group names, mostly covering complexes, and here they are rearranged to form three groups only. The *ocellata*-group corresponds to *Alyosia* Rondani, and makes a homogeneous unit that stands apart from the other two adopted.

COMPTOSIA FASCIPENNIS-GROUP.

Group A (*fascipennis*-group) Edwards, in part. Group B (*fasciata*-group) Edwards.

COMPTOSIA (COMPTOSIA) FASCIPENNIS Macquart.

*Comptosia fascipennis* Macquart, *Dipt. exot.*, ii, 1840, 81; Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 54; *ibid.*, 1924, 79. *Comptosia (Comptosia) fascipennis* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 87.



There are three species that run to couplet 4 of the key, the third is apparently unnamed and differs from the present species by both sexes having no white on the wing. New South Wales and South Australia.

COMPTOSIA (COMPTOSIA) LATERALIS Newman.

*Neuria lateralis* Newman, *Entomologist*, i, 1841, 220; Walker, *Ins. Saund.*, Dipt., 1852, 167; Schiner, *Reise Novara*, Dipt., 1868, 131. *Comptosia lateralis* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 58; Hardy, *Proc. Linn. Soc. N.S.W.*, lviii, 1933, 414. *Comptosia (Comptosia) lateralis* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 88. *Anthrax insignis* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 266. *Anthrax duccens* Walker, *Ins. Saund.*, Dipt., 1850, 176; 167 (*Neuria*). *Comptosia duccens* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 58. *Comptosia rufoscutellata* Jaennicke, *Abh. senckenb. naturf. Ges.*, vi, 1867, 345; Pl. 43, fig. 9; Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 61. *Neuria grandis* Schiner, *Reise Novara*, Dipt., 1868, 132. *Comptosia albofasciata* Thomson, *Eugenies Resa*, Dipt., 1869, 484; Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 58.

A common species in New South Wales.

COMPTOSIA (COMPTOSIA) NIGRICENS Newman.

*Anthrax fasciata* Fabricius, *Syst. Antl.*, 1805, 118 (preoccupied); Wiedemann, *Dipt. exot.*, 1821, 150; Wiedemann, *Auss. zweifl. Ins.*, i, 1828, 321; Walker, *List Dipt. Brit. Mus.*, ii, 1849, 267. *Neuria fasciata* Walker, *Ins. Saund.*, Dipt., 1852, 167; Schiner, *Reise Novara*, Dipt., 1868, 129. *Comptosia fasciata* Hutton, *N.Z. Dipt.*, 1881, 24; Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 57; *ibid.*, 1923, 79. *Comptosia (Comptosia) fasciata* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 89. *Comptosia nigricens* Newman, *Entomologist*, i, 1841, 221.

The name given by Fabricius is preoccupied by Meigen (*Klass. Beschr. zweifl. Ins.*, i, 1804, 200), and the type was not examined by Edwards, who depended upon a male named by Walker. New South Wales.

COMPTOSIA (COMPTOSIA) SOBRIA Walker.

*Anthrax sobria* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 269. *Neuria sobria* Walker, *Ins. Saund.*, Dipt., 1852, 167. *Comptosia sobria* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 59. *Comptosia (Comptosia) sobria* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 91. *Comptosia bicolor* Macquart, *Dipt. exot.*, suppl. 4, 1850, 114; Pl. 10, fig. 17. *Neuria bicolor* Schiner, *Reise Novara*, Dipt., 1868, 131. *Anthrax subsenex* Walker, *Trans. ent. Soc. Lond.*, iv, 1857, 144. *Lomatia subsenex* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 52. *Comptosia subsenex* Hardy, *ibid.*, 1923, 80.

Both Walker's types were found to be identical by Edwards, who adds Macquart's species without comment. New South Wales.

COMPTOSIA (COMPTOSIA) BRUNNEA Edwards.

*Comptosia aurifrons* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 59; *nec* Macquart, *nec* Edwards. *Comptosia extensa* Hardy, *ibid.*, 1923, 80; *nec* Walker. *Comptosia (Comptosia) brunnea* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 90; fig. 1.

The valid name for this species is in doubt. I believe it to be *C. aurifrons* Macquart, a name which Edwards applies to a north Queensland species that could not have reached Macquart. The type has not been seen and there are several views concerning its identity. Edwards applied a new name to this species, contrasting it with *C. extensa* from Western Australia. There is an allied species which has the scutellum red apically, face with orange hairs in place of yellow, and the venation has the median vein diverted. New South Wales and South Australia.

COMPTOSIA BASILIS-GROUP.

Group C (*pracargentata*-group) Edwards, in part.

COMPTOSIA (COMPTOSIA) VITTATA Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 89; fig. 3.

A very distinctive southern species, recorded from Victoria and South Australia, but apparently seldom found.



## COMPTOSIA (COMPTOSIA) DECEDENS Walker.

*Anthrax decedens* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 271. *Neuria decedens* Walker, *Ins. Saund.*, Dipt., 1852, 167. *Comptosia (Comptosia) decedens* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 88.

This Western Australian species is probably conspecific with *C. basilis*, of which the venation is said to differ by the third median vein, "almost continuing the direction of the first section", and yet also is compared with that of *C. vittata*. This is a contradiction in the description and both forms agree with *C. vittata* in having the diversion to about 30 degrees.

## COMPTOSIA (COMPTOSIA) BASILIS Walker.

*Anthrax basilis* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 267. *Neuria basilis* Walker, *Ins. Saund.*, Dipt., 1852, 167. *Comptosia basilis* Hardy, *Proc. Roy. Soc. Tasm.*, 1923, 80. *Comptosia (Comptosia) basilis* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 89.

There is another species allied here, but without the tuberculations on the costa, the scutellum is red and the abdomen has a pale transverse line on the basal segment. Western Australia.

## COMPTOSIA (COMPTOSIA) QUADRIPENNIS Walker.

*Anthrax quadripennis* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 268. *Neuria quadripennis* Walker, *Ins. Saund.*, Dipt., 1852, 167. *Comptosia quadripennis* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 59. *Comptosia (Comptosia) quadripennis* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 92.

Queensland and South Australia.

## COMPTOSIA (COMPTOSIA) BANCROFTI Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 93; fig. 9.  
Queensland.

## COMPTOSIA (COMPTOSIA) BIGUTTATA Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 93; fig. 8.  
Queensland and New South Wales.

## COMPTOSIA (COMPTOSIA) EDWARDSI, new name.

*Comptosia (Comptosia) praeargentata* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 91; fig. 10; *nec* Macleay. *Comptosia (Comptosia) aurifrons* Edwards, *ibid.*, 91; *nec* Macquart.

*Synonymy*.—I have no hesitation in regarding Edwards' two forms as being conspecific, but his single specimen from Brisbane must be excluded as this belongs to an allied species in which the white of the wings is missing in both sexes. Macleay described *Anthrax praeargentata* from King's collection, and for reasons given at the end of this paper, it appears that King's Diptera have been almost entirely captured in the Sydney district. Similarly it is impossible for the present species to have reached Macquart, whose material did not come from further north than Brisbane; hence his name must apply to some other form.

*Hab.*—North Queensland: Kuranda, Cairns, Gordonvale and Meringa. A single specimen (male, 1.xii.1931, J. H. Buzacott) was reared from the larva at Meringa, and it is a well-known fly of the sugar-fields.

In addition to the above, five more species are known; one near *C. edwardsi* has the white on the wings of both sexes, and this character is entirely lacking on the others, which are similarly related. Two have the scutellum red; one of these also has the abdomen red at the sides and is marked in the key as being possibly *C. rubifera* Bigot. The other two have the scutellum and abdomen all black, one having the frons with orange hairs, the other black.

## COMPTOSIA OCELLATA-GROUP.

*Alyosia Rondani*, *Arch. per la Zool.*, iii, 1863, 54; Becker, *Ann. Mus. Zool. St. Petersb.*, xvii, 1912, 465. Group D (*apicalis*-group) Edwards, in part. Group E (*ocellata*-group) Edwards.

All described species have white on the wings at least in the male, but two others are entirely without this character, and have mixed black and white hairs on the frons and glistening white ones on the face.

COMPTOSIA (COMPTOSIA) OCELLATA Newman.

*Neuria ocellata* Newman, *Entomologist*, i, 1841, 221; Walker, *Ins. Saund.*, Dipt., 1852, 167. *Anthrax ocellata* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 268. *Comptosia ocellata* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 55. *Comptosia (Comptosia) ocellata* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 95; fig. 12. *Comptosia maculipennis* Macquart, *Dipt. exot.*, suppl. 1, 1846, 116; White, *Proc. Roy. Soc. Tasm.*, 1916, 201. *Anthrax inclusa* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 268. *Comptosia (Comptosia) inclusa* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 95; fig. 19.

*Synonymy*.—All three specific names were based on specimens from Tasmania, where only one variable species is known. I have not seen specimens from New South Wales and Queensland, which States were subsequently added to the distribution.

COMPTOSIA (COMPTOSIA) GEMINA, new name.

*Anthrax cognata* Walker, *Ins. Saund.*, Dipt., 1852, 177; 167 (*Neuria*); preoccupied. *Comptosia (Comptosia) cognata* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 95; fig. 13.

Walker used the name twice; in the first instance (*List Dipt. Brit. Mus.*, ii, 1849, 264) he applied it to an African Bombyliid. To the present species must be referred all records of *C. ocellata* from Western Australia, in which State only this one is known.

COMPTOSIA (COMPTOSIA) APICALIS Macquart.

*Comptosia apicalis* Macquart, *Dipt. exot.*, suppl. 3, 1846, 35; Pl. 3, fig. 13; Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 59. *Alyosia apicalis* Rondani, *Arch. per la Zool.*, iii, 1863, 54. *Neuria apicalis* Schiner, *Reise Novara*, Dipt., 1868, 132. *Comptosia (Comptosia) apicalis* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 92.

New South Wales.

COMPTOSIA (COMPTOSIA) WALKERI Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 94; fig. 11.

The type locality is not known, but a second specimen is recorded from Stradbroke I., Queensland, and further material before me comes from the same area, Bribie I. and Brisbane, all specimens being males.

From Tooloom comes a very close ally, several specimens taken *in copula*, and here the female is without the white on the wing. Except the Brisbane specimen, all recorded here were captures by Mr. H. Hacker. Edwards' type was identified as being *praeargentata* Macleay. Under that name is a specimen "in the cabinet of the Entomological Club" by Newman, and Walker may have secured the identification from this source.

COMPTOSIA (COMPTOSIA) WILKINSI Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 94; fig. 17.

In the type locality, Groote Eylandt, two species are so much alike that they are liable to be confused, and Mr. N. B. Tindale has secured a series of both. One of these belongs to the genus *Doddosia*, and the other is the present species. The latter is dimorphic in regard to wing marking, and the former is variable. The two males before me of *C. wilkinsi*, marked allotype and paratype male respectively, are in the Roberts' collection together with four females, and represent part of a larger series; the others have not been seen by me. The male of *C. wilkinsi* has the wing markings much deeper brown than those of the female, and in addition, there is an obvious fascia, interrupted, near the base; the interruption is caused by the whole of the second basal cell being clear.

COMPTOSIA (COMPTOSIA) MORETONI Macquart.

*Comptosia moretonii* Macquart, *Dipt. exot.*, suppl. 5, 1855, 77; Pl. 3, fig. 15. *Comptosia (Comptosia) moretoni* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 94; fig. 18.

This Queensland fly, from the Moreton Bay district (Brisbane) is also recorded from north Queensland by Edwards, but I have only seen southern specimens.

Subgenus ALEUCOSIA Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 95.

Five points that tend towards isolating this group from subgenus *Comptosia*, are given by Edwards, and a sixth may be added by referring to the face and frons colouration, which is rather uniformly dark or dingy. There is also a strong propensity for venational abnormalities to occur, and most markedly so in the radial field.

Edwards makes four groups, but two of these are somewhat complex and are better united. The *corculum*-group contains mainly species so intergrading in their characters that originally they were regarded as variations, and were united under the one name "*sylvana*", it being believed that Fabricius had described one of them under the name *Biblio sylvanus*; this is now known to be a *Ligyra*. The name "*sylvana*" has no standing in this connection, and was based principally upon *C. calopthalma* Thomson. The same species has long stood under the name *corculum* in Australian collections, and this probably misled White. Edwards again was led into error, as he had only a few Museum specimens to guide him, whereas *C. corculum* of Western Australia is a very variable form known to me from long series of specimens in various collections. The other species of which I have collected series, prove more consistent in characters, except the Mt. Wellington species, which varied widely in the characters which Edwards selected for distinguishing it. Each species so far isolated seems to have a more or less confined distribution, with no overlapping except in the case of *C. hemiteles*, which covers areas where *C. calopthalma* occurs. I think, now, all the described forms are adequately isolated, and the only species of the complex which I have not found is *C. tricellata* Macq., described from Tasmania, but it might be an abnormal form of *C. tripunctata* Edwards, which is liable to variations. Edwards saw the types, two females, in bad condition.

COMPTOSIA MACULOSA-group.

Group A (*maculosa*-group) Edwards.

COMPTOSIA (ALEUCOSIA) MACULOSA Newman.

*Neuria maculosa* Newman, *Entomologist*, i, 1841, 221. *Comptosia (Aleucosia) maculosa* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 96; fig. 2.

A Western Australian species which Edwards also records from South Australia.

COMPTOSIA (ALEUCOSIA) FULVIPES Bigot.

*Comptosia fulvipes* Bigot, *Ann. ent. Soc. Fr.*, lxi, 1892, 359. *Comptosia (Aleucosia) fulvipes* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 96.

For locality, only "Australia" is quoted, but Bigot's flies all seem to be from the eastern side. The species is quite unknown to me, and Edwards only saw the type.

COMPTOSIA CORCULUM-group.

Group B (*corculum*-group) Edwards.

COMPTOSIA (ALEUCOSIA) TRICELLATA Macquart.

*Comptosia tricellata* Macquart, *Dipt. exot.*, suppl. 2, 1847, 53; Pl. 2, fig. 6; *nec* Schiner, *nec* Hardy. *Comptosia (Aleucosia) tricellata* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 98.

The only species seen by me that agrees with the wing marking confirmed by Edwards from the type, is a variation of *C. corculum*, but this could hardly be identical.

COMPTOSIA (ALEUCOSIA) CORCULUM Newman.

*Neuria corculum* Newman, *Entomologist*, i, 1841, 221; Walker, *Ins. Saund.*, Dipt., 1852, 167; *nec* White, *nec* Hardy. *Atherix corculum* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 269. *Comptosia (Aleucosia) corculum* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 99; fig. 15. *Comptosia (Aleucosia) cincta* Edwards, *ibid.*, 99.

Edwards' two forms are conspecific and the species is variable in wing markings. Western Australia.



## COMPTOSIA (ALEUCOSIA) TRIPUNCTATA Edwards.

*Comptosia corculum* Hardy, *Proc. Roy. Soc. Tasm.*, 1917, 66; White, *ibid.*, 1916, 203 (suppositious only); *nec* Newman. *Comptosia sylvana* form *tricellata* Hardy, *ibid.*, 1927, 57. *Comptosia tricellata* Hardy, *Proc. Linn. Soc. N.S.W.*, lviii, 1933, 414. *Comptosia (Aleucosia) tripunctata* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 98.

Unless the quoted locality "Tasmania" be incorrect, the species described by Edwards can only be the one limited to Mt. Wellington. At the apex of the first basal cell, there is a varying amount of clear area, ranging from quite wide to almost obsolete, the whole cell then being covered with brown, the hardly noticeable spot or dot left being easily overlooked. There is a discrepancy in the description concerning "pubescence in the lateral angle of the eye yellow" which doubtfully applies; the colour is nearer white and appears slightly yellow under artificial light. The yellow occurs on *corculum*, *costalis* and *atherix*, and white on all the rest of the species before me.

## COMPTOSIA (ALEUCOSIA) CALOPHTHALMA Thomson.

*Neuria tricellata* Schiner, *Reise Novara*, *Dipt.*, 1868, 131; *nec* Macquart. *Comptosia calophtalma* Thomson, *Eugenics Resa*, *Dipt.*, 1869, 485. *Comptosia sylvana* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 55; *nec* Fabricius. *Comptosia (Aleucosia) calophtalma* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 99; fig. 25.

New South Wales. Edwards adds Victoria and Queensland, recording two males in the British Museum from the Moreton Bay district, but it is possible that an error has been made by inexactness of locality. Some typical species of New South Wales extend into Stradbroke I., and it is possible that they came from there; Moreton Bay district records in literature all refer to the mainland, and include Brisbane. Stradbroke I. is a distinctive faunal zone for Diptera, containing species which seem to run into northern New South Wales.

## COMPTOSIA (ALEUCOSIA) ATHERIX Newman.

*Neuria atherix* Newman, *Entomologist*, i, 1841, 222; Walker, *Ins. Saund.*, *Dipt.*, 1852, 167. *Comptosia (Aleucosia) atherix* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 97. *Comptosia geometrica* Macquart, *Dipt. exot.*, suppl. 2, 1847, 53; Pl. 2, fig. 7; White, *Proc. Roy. Soc. Tasm.*, 1916, 202; Hardy, *Proc. Linn. Soc. N.S.W.*, lviii, 1933, 414. *Neuria geometrica* Walker, *Ins. Saund.*, *Dipt.*, 1852, 167. *Alyosia geometrica* Rondani, *Arch. per la Zool.*, iii, 1863, 54. *Comptosia sylvana* form *geometrica* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 57. *Atherix obscura* Walker, *Ins. Saund.*, *Dipt.*, 1852, 176; 167 (*Neuria*).

Newman's type is recorded from South Australia, those of Macquart and Walker are from Tasmania. Edwards has seen the latter two, but makes no mention of Newman's, and this identity needs confirmation. I have seen no mainland specimens of this common Tasmanian species.

## COMPTOSIA (ALEUCOSIA) HEMITELES Schiner.

*Neuria hemiteles* Schiner, *Reise Novara*, *Dipt.*, 1868, 132. *Comptosia sylvanus* form *hemiteles* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 57. *Comptosia hemiteles* Hardy, *Proc. Linn. Soc. N.S.W.*, lviii, 1933, 414. *Comptosia (Aleucosia) hemiteles* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 98.

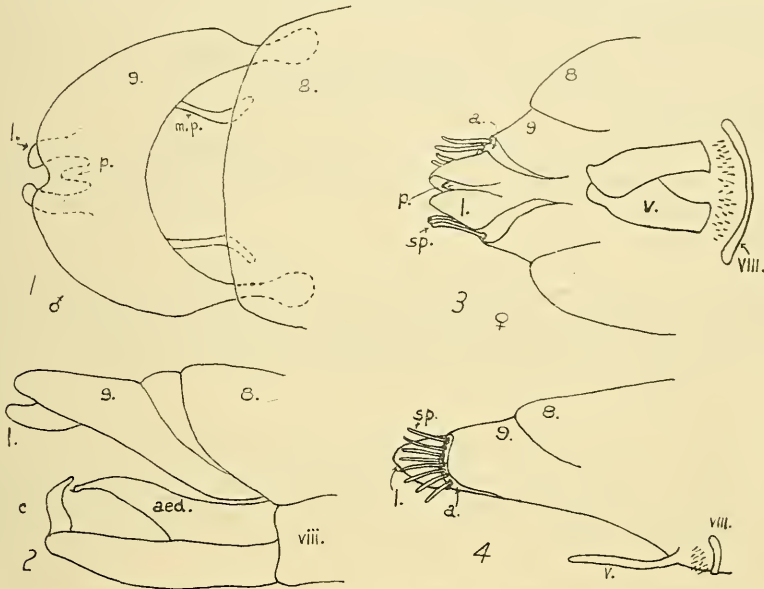
The known distribution covers New South Wales to the Toowoomba-Stanthorpe region of Queensland. The near ally, *C. costalis* Edwards, occurs widely over the mainland area of the Moreton Bay district. There is only the marking of the wing to distinguish between the two, but this proves consistent with distribution. The present form is the first spring Bombyliid to appear on the wing in the Sydney district, as far as I know, and is quickly followed by *C. calophtalma* Thomson, which lasts longer on the wing.

## COMPTOSIA (ALEUCOSIA) COSTALIS Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 99; fig. 14.

This fly is the second of the family to appear in the Brisbane district, about the middle of August, and is abundant through the early spring. The figures given of the terminalia (Figs. 1-4) are identical with those of other species of the genus so far

examined. On the male they twist on the longitudinal axis and may be found turned to any position from erect to 180 degrees, and during copulation are inverted, the sexes flying with the male dragged behind the female and facing rearwards. The claspers are hinged to swing from the vertical and slightly sloping forwards position, to the horizontal rearwardly directed position. The supports, at the apex of which the claspers stand, are fused along the median line below, so as to form a single unit, instead of two separate ones found everywhere in the Asiloidea except in Bombyliidae. The aedeagus,



Figs. 1-4.—*Comptosia (Aleucosia) costalis* Edwards. Fig. 1.—Terminalia of the male, dorsal view. Fig. 2.—Terminalia of the male, lateral view. Fig. 3.—Terminalia of the female, ventral view. Fig. 4.—Terminalia of the female, lateral view. *a.*, acanthophorites; *aed.*, aedeagus; *c.*, clasper; *l.*, lamella; *m.p.*, median plate; *p.*, anal papilla; *sp.*, spine; *v.*, ventral valve; 8 and 9, eighth and ninth tergite; viii, eighth sternite.

which lies above this complex structure, is of the usual Asiloidean type. The anal papilla is flanked by two membranous fat-filled lamellae that represent the dorsal lamella, divided and moved downwards to take this lateral position; the ventral lamella is missing. The whole structure (proctiger) is placed subapically, below an emargination of the apical tergite. As far as can be determined, two widely separated ridges of chitin represent the median plate. The ninth (apical) tergite has two arms embedded below the eighth, and a membrane between is so arranged as to allow the whole terminalia to be retracted and mainly concealed within the eighth segment.

The female has acanthophorites fused to the ninth tergite, making one unit, and the proctiger is apically placed and of the same form as that of the male. A median plate has not been detected, but the ventral valves form a pair of flat plate-like structures that protect the gonopore. The eighth sternite is reduced to a transverse bar, an area of membrane between it and the ventral valves being heavily studded with minute bristly spines.

#### COMPTOSIA (ALEUCOSIA) PARTITA Newman.

*Neuria partita* Newman, *Entomologist*, i, 1841, 221; Walker, *Ins. Saund.*, Dipt., 1852, 167. *Comptosia (Aleucosia) partita* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 97; fig. 16.

A very distinctive form which has the apical half of the costa bowed forward, and in other ways mis-shapen in the male. Western Australia.

#### COMPTOSIA DORSALIS-GROUP.

Group C (*dorsalis*-group) Edwards. Group D (*plena*-group) Edwards.

## COMPTOSIA (ALEUCOSIA) DORSALIS Walker.

*Anthrax dorsalis* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 269. *Neuria dorsalis* Walker, *Ins. Saund.*, Dipt., 1852, 167. *Comptosia dorsalis* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 59. *Comptosia (Aleucosia) dorsalis* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 100; fig. 22. Western Australia.

## COMPTOSIA (ALEUCOSIA) CUNEATA Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 100; fig. 23. Western Australia.

## COMPTOSIA (ALEUCOSIA) ANGUSTA Edwards.

Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 100; fig. 24. Western Australia.

## COMPTOSIA (ALEUCOSIA) SERPENTIGER Walker.

*Anthrax serpentiger* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 270. *Comptosia (Aleucosia) serpentiger* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 101; fig. 21. Western Australia.

## COMPTOSIA (ALEUCOSIA) PLENA Walker.

*Anthrax plena* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 270. *Neuria plena* Walker, *Ins. Saund.*, Dipt., 1852, 167. *Comptosia plena* Hardy, *Proc. Roy. Soc. Tasm.*, 1921, 57; 1923, 79. *Comptosia (Aleucosia) plena* Edwards, *Encycl. Ent. Dipt.*, vii, 1934, 101; fig. 16. Western Australia.

*Species of Unknown and Doubtful Identity.*

Those species recorded above have all been identified in Australian collections, except two, *C. fulvipes* Bigot and *C. tricellata* Macquart, and the approximate position is known in these cases. Attempts to establish the identity of the following seven have not been successful:

(1). *anthracina* Thomson, *Eugenies Resa*, Dipt., 1869, 485 (*Comptosia*). It is not a *Comptosia*, but probably belongs to *Lomatia*.

(2). *aurifrons* Macquart, *Dipt. exot.*, suppl. 4, 1850, 113; Pl. 10, fig. 16 (*Comptosia*). I believe this to be *C. brunnea* Edwards, but Edwards applied the name to a species which could not have reached Macquart. The type has not been seen.

(3). *extensa* Walker, *Ent. Mag.*, ii, 1835, 473 (*Anthrax*). No locality is given, but Western Australia was added at a later date. Edwards refers the name to a species I have not seen.

(4). *murina* Newman, *Entomologist*, i, 1841, 221 (*Neuria*). Unknown to all subsequent authors, and apparently the type, from South Australia, has been lost.

(5). *praeargentatus* Macleay, in King's *Narrative Surv. Coast Australia*, 1827, 468 (*Anthrax*). Several authors have attempted to identify this species, but none seems successful.

(6). *rubifera* Bigot, *Ann. Soc. ent. Fr.*, (6) i, 1881, 23 (*Lygira*). Edwards states that the type resembles *fascipennis* Macq., but is without the white fascia in the wing. This agrees with the unnamed species mentioned above, but the description does not seem to belong there. In the key, couplet 13, another species is marked as possibly Bigot's form.

(7). *stria* Walker, *List Dipt. Brit. Mus.*, ii, 1849, 267 (*Anthrax*). This evidently belongs to the *basilis*-group and cannot be placed by me without more data than Edwards gives; he compared it with *C. sobria* Walk.

*The Diptera described by Macleay.*

Macleay described eight flies in King's "Narrative of the survey of the intertropical and western coasts of Australia", 1827, under the title "A catalogue of the insects collected by Captain King, R.N.". The flies constitute about four per cent. of the total insects described, and are as follows:



*Stratiomys hunteri* is an *Odontomyia* not found north of New South Wales and reaches Tasmania; it is common in Sydney.

*Asilus inglorius* is a *Neoaratus*, abundant in Sydney, reaches Brisbane, but not certainly known north of this, records probably being confused with allied forms since described.

*Tabanus guttatus* Donovan is a *Scaptia* that does not occur beyond one hundred miles north of Brisbane, and is typical of Sydney.

*Tabanus cinerescens* reaches the Northern Territory, but is common in Sydney.

*Pangonia roei* remains unrecognized. It was named in manuscript by King himself, and his fellow officer, J. S. Roe, may have supplied it from some other source, the name being a tribute to the donor.

*Anthrax praeargentata* is certainly *Comptosia*, but of doubtful identity.

*Anthrax bombyliiformis* is *Ligyra sylvanus* Fab., widely distributed and abundant in Sydney and Brisbane.

*Musca splendida* Donovan is a *Rutilia*, typical of Sydney, but records show it has a wide distribution.

The six species that are recognized in the above list form a group that anyone would be likely to gather in Sydney, the district where King spent the longest periods of his stay in Australia. The more typical northern Diptera are not represented, except perhaps by *Tabanus cinerescens* and *Ligyra sylvanus*. The latter, at least, would coincide in occurrence with King's survey. None are typical of the area and limited there, such as was found amongst the flies collected by Banks when on Cook's voyage. It seems very doubtful if King collected any flies when in Queensland.

*Anthrax praeargentata* Macleay, judging from description alone, could be *Comptosia edwardsi* n.n., in conformity with Edwards' suggestion, but against this view is the fact that the species is known to occur during months when King was not in Queensland waters. This prohibits any possibility of King having secured it.